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PATENTS
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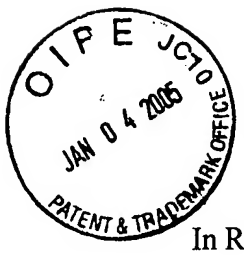

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of:
Mack J. Schermer et al.

Serial No.: 10/635,386

Filed: August 6, 2003

For: INTERACTIVE SYSTEM FOR ANALYZING SCATTER PLOTS

Examiner: Bhatnagar, A.P.

Art Unit: 2623

Cesari and McKenna, LLP
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January 4, 2005

"Express Mail" Mailing-Label Number: EV433573308US

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE

We have carefully considered the Office action dated October 4, 2004. The invention as set forth in claims 1 and 13 is a system that displays a scatter plot of data points and includes therein **boundaries that meet certain user-specified selection criteria**, which are interactively supplied by the user. Thus, unlike the cited art, the current system does not impose boundaries and/or selection criteria on the plotted data. A user may also select data points within the corresponding boundaries, such that the system retrieves and displays recorded information corresponding to the selected points.

In contrast, the Cline system displays a scatter plot of data relating to various predetermined tissue types. The system uses a gradient calculation unit to construct a "gradient data set," which highlights the locations of significant change in an image data set. Specifically, the gradient calculation unit "calculates changes in the values of the 4D data set entries from location to location, **identifying** boundaries of significant change." (Col. 3, lines 18-21, emphasis added.) The boundaries identified in the data correspond to boundaries between various known tissue types, such as "arteries, veins, cardiac muscle, cardiac valves and blood pools." (Col. 3, lines 45-46).

A user then selects "slices" that relate to the various tissue types and further selects locations on the slice image that are characteristic of the plurality of know tissue types. (See, Col. 3, lines 29-41). As described, the user selects the locations "uniformly over various known tissue types." (Col. 3, lines 41-42). The system then plots corresponding data values from an image data set and the gradient data set in a scatter plot (See, Col. 3, lines 47-50). Cline system further calculates a probability distribution for each known tissue type based on the various slices, and determines which points belong within the various system identified boundaries between the known tissue types. (See, Col. 4, lines 4-10).

The Gilham patent describes a system in which a user may determine which cardiac interval data are displayed in a scatter plot by selecting among predetermined selection criteria that correspond to type of heart beat and so forth. As denoted in the drawings, for example, Figs. 9A-H, the Gilham system displays data meeting a selected set of the predetermined selection criteria, and does not display data that does not meet

the selected set of criteria. See, also, Col. 5, lines 1-6; Col. 6, lines 6-8; Col. 7, lines 7-12, lines 22-29, and so forth.

The teaching of Gilham adds to the teachings of Cline the display of only data that meets a selected set of the predetermined selection criteria and/or identified boundaries. Thus, a user of a combined system could display data indicating only veins, or arteries, and so forth. There is no teaching or suggestion in the combination of a system that determines, in a scatter plot of collected data, boundaries that correspond to selection criteria interactively supplied by a user, as set forth in independent claims 1 and 13 and the claims that depend therefrom.

Accordingly, independent claims 1 and 13 and the claims that depend therefrom should be allowable over the cited combination. We do not specifically address the Examiner's rejections of the claims that depend from claims 1 and 13. This should not be construed as acquiescence to the rejections, but as recognition that the rejections are moot based on our remarks regarding the allowability of the independent claims 1 and 13.

The Examiner adds to the combination of Cline and Gilham three further patents, namely, patents to Peck, Laine and Balaban and cites the 5-patent combination against claim 6.

The Peck patent describes a system that chemically tags genes and plots differentially expressed genes based on constituent colors of corresponding chromogens. The Laine patent describes methods of detecting eubacteria and fungus in biological samples based on tagging or staining, and plotting the results. The Balaban patent describes a system that allows a user to query a database based on predetermined

selection criteria, to identify tags that correspond to particular tissue types, and plot the results. As in Gilham, the plot displays data that are responsive to the query, that is, that meet the selected set of selection criteria, and does not display data that are not responsive to the query.

If the teachings of all 5 patents could be combined in a meaningful way, the teachings of Peck, Laine and Balaban add to the teachings of Cline and Gilham the displaying of data that correspond to known tissue types, where the properties of chemical tags are the criteria used to determine the correspondence. There is no teaching or suggestion in the combination of a system that determines, in a scatter plot of collected data, boundaries that correspond to selection criteria interactively supplied by a user, as set forth in independent claim 6.

Accordingly, independent claim 6 should be allowable over the cited combination.

With respect to claims 7, the combination of Cline and Gilham is cited in further combination with Aghajan, which describes a system for detecting defects in semiconductor wafers based on the results of using a predetermined noise reduction filter on test data. The noise reduction filter is depicted in a plot of the data as a mask. If the teachings of Aghajan can be combined in a meaningful way with the teachings of Cline and Gilham, the result is a system in which a predetermined filter or threshold is applied to data to identify boundaries, instead of or in addition to the boundaries identified by particular changes in the data as taught by Cline, and plotting the data that satisfy the identified boundaries as taught by Gilham. There is no teaching or suggestion in the

combination of a system that determines, in a scatter plot of collected data, boundaries that correspond to selection criteria interactively supplied by a user, as set forth in independent claim 7 and the claims that depend therefrom.

Accordingly, claim 7 and the claims that depend therefrom should be allowable over the cited combination. We do not specifically address the Examiner's rejections of the claims that depend from claim 7. This should not be construed as acquiescence to the rejections, but as recognition that the rejections are moot based on our remarks regarding the allowability of the independent claim 7.

With respect to the double patenting rejections, we will as necessary execute a terminal disclaimer based on the parent patent once the obviousness rejections of the claims have been resolved. However, as discussed above, adding to the claims of the parent patent the teachings of Peck, namely, plotting tag data that represents differentially expressed genes based on constituent colors, does not teach or suggest the subject matter of the current claims.

In light of the above, we respectfully request that the Examiner reconsider the rejections and issue a Notice of Allowance for the pending claims.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

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